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EXAMINER	
TIMORY, KABIR A	
ART UNIT	**PAPER NUMBER**
2609	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/820,440	GARDNER ET AL.	
	Examiner	Art Unit	
	Kabir A. Timory	2609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 April 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *9/13/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 20-23, and 24-27 are objected to because of the following informalities:

(1) Claim 20, line 3: the limitation **"might be present"** is not a definite statement. The examiner is respectfully requesting to change the limitation to a specific and definite statement such as **--is or will be present--**.

(2) Claim 21, line 2: There is no specific support for **"modified short training sequence"** limitation in the specification. The examiner is respectfully requesting to show specific support for this limitation in the specification.

(3) Claim 24, line 3: the limitation **"might be listening"** is not a definite statement. The examiner is respectfully requesting to change the limitation to a specific and definite statement such as **--is or will be listening--**.

Appropriate correction is required.

2. Claim 30 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 29. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Drawings

3. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because figures 1-3 and 9 are handwritten and unclear. Applicant is advised to employ the services of a competent patent draftsperson outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-8, 10-23, and 28-34 are rejected under 35 U.S.C. 102(e) as being anticipated by Stuber et al (US Pub. Number 2003/0076777).

Regarding claim 1:

As shown in figure 1, Stuber et al. discloses a method of transmitting signals using a plurality of transmit antennas, the method comprising:

- allocating the data (figure 1, 15) to be transmitted among the plurality of transmit antennas (figure 1, 18), wherein at least one of the plurality of transmit antennas transmits some data that is not transmitted by all of the other of the plurality of transmit antennas (figure 1, 18);
- transmitting a modified preamble from each of the plurality of transmit antennas (figure 5), wherein the modified preamble is distinguishable at a receiver from a conventional 802.11a preamble (paragraph 0008, lines 16-24, and paragraph 0011, lines 1-4).

Regarding claim 2:

Stuber et al. further discloses, wherein the plurality of transmitters transmit data in total at an extended rate above a corresponding 802.11 a data rate (paragraph 0011, lines 1-4).

Regarding claim 3:

Stuber et al. further discloses, wherein the modified preamble comprises a modified long training pattern distinct from a conventional 802.11 a long training pattern (figure 5).

Regarding claim 4:

Stuber et al further discloses, at least a part of the modified long training pattern has a low cross correlation with a corresponding part of the conventional 802.11 a pattern, thereby facilitating discrimination based on cross correlation (selecting data structure is interpreted to be facilitating discrimination) (paragraph 0029, lines 14-19, claim 13, lines 1-8).

Regarding claim 5:

Stuber et al. further discloses, wherein the at least a part of the modified long training pattern is transmitted using more than one of the plurality of transmit antennas such that it is receivable and processable by one or more receivers (figure 3).

Regarding claim 6:

Stuber et al. further discloses, a method of discriminating between a packet sent with a conventional 802.11 a rate or with an extended rate (selecting data structure is interpreted to be discriminating between a packet sent with a conventional 802.11 a rate or with an extended rate) (paragraph 0014, lines 2-5), comprising:

- receiving one or more signals from one or more transmitters (figure 1, 18, 20), the one or more signals including a long training subcarrier (figure 5);
- multiplying the long training subcarrier with a conventional 802.11 a long training pattern to form a first product; multiplying the long training subcarrier with an extended 802.11 a long training pattern to form a second product; determining, from the first product and the second product, which long training pattern was more likely to have been sent for the received long training subcarrier (the operation of transmit and receive matrix is interpreted to do the multiplication of long training with conventional and extended 802.11a) (figure 3, paragraph 0044, lines 6-17); and
- discriminating as to which type of packet was sent based on the more likely sent long training subcarrier (selecting data structure is interpreted to be discriminating between a packet sent with a conventional 802.11 a rate or with an extended rate) (paragraph 0014, lines 2-5).

Regarding claim 7:

Stuber et al. further discloses a method of transmitting signals using a plurality of transmit channels, the method comprising:

- allocating the data to be transmitted among the plurality of transmit channels (figure 1, 15), wherein at least one of the plurality of transmit channels transports some data that is not transmitted over all of the other of the plurality of transmit channels (figure 1, 18);
- transmitting a modified preamble from each of the plurality of transmit channels (figure 3), wherein the modified preamble is distinguishable at a receiver from a conventional 802.1 la preamble and includes an out-of-band component (paragraph 0057, lines 1-7).

Regarding claim 8:

Stuber et al. further discloses, wherein the plurality of transmit channels comprise a plurality of frequency channels (paragraph 0007, lines 1-8).

Regarding claim 10:

As shown in figure 3, Stuber et al. further discloses, a method of transmitting signals using a plurality of transmit channels, the method comprising:

- allocating the data to be transmitted among the plurality of transmit channels, wherein at least one of the plurality of transmit channels transports some data that is not transmitted over all of the other of the plurality of transmit channels (paragraph 0007, lines 1-8);

- for at least one set of at least two adjacent transmit channels, transmitting data over the set (paragraph 0007, lines 1-8) wherein at least some data is encoded (figure 2, 26) in out-of-band subcarriers at frequencies between frequencies allocated to the at least two adjacent transmit channels (paragraph 0057, lines 1-7).

Regarding claim 11:

Stuber et al. further disclose In a communications system having a channel divided into a plurality of adjacent frequency bands separated by out-of-band frequency ranges, wherein data is transmitted within the bands of the plurality of frequency bands, a method of increasing data capacity of the channel comprising:

- for data to be transmitted from a transmitter, allocating a first portion of the data among the plurality of transmit frequency bands (training symbols are interpreted to be first portion of data) (figure 5, 53) and allocating a second portion of the data (data symbols are interpreted to be second portion of data) (figure 5, 54) to at least one out-of-band frequency range when the first portion is allocated to adjacent bands, wherein the at least one out-of-band frequency range includes an out-of-band frequency range between the adjacent bands (unlicensed frequencies are interpreted to be the out-of-band frequencies) (paragraph 0027, lines 1-6);
- transmitting the first portion (training symbols are interpreted to be the first portion) (figure 5, 53) within the plurality of transmit frequency bands (frequency rage of 2 to 11 GHz is interpreted to be plurality of frequency bands) (paragraph 0027, lines 1-4); and

- transmitting the second portion (data symbols are interpreted to be the second portion) (figure 5, 55) within the at least one out-of-band frequency range (unlicensed frequencies are interpreted to be the out-of-band frequencies) (paragraph 0027, lines 1-6).

Regarding claim 12:

Stuber et al. further disclose:

- prior to transmitting at least the second portion of the data, transmitting one or more training symbols usable for a receiver to estimate transmission characteristics of the out-of-band frequency ranges (unlicensed frequencies are interpreted to be the out-of-band frequencies) (paragraph 0027, lines 1-6, and paragraph 0060, lines 2-7); and
- using received signal of the one or more training symbols to modify processing of a received signal corresponding to the second portion of the data to account for the transmission characteristics of the out-of-band frequency ranges (unlicensed frequencies are interpreted to be the out-of-band frequencies) (paragraph 0027, lines 1-6, and paragraph 0060, lines 2-7).

Regarding claim 13:

Stuber et al. further discloses a method of discriminating between a packet sent as a conventional 802.11a packet and a packet sent using an extended mode not normally supported under the conventional 802.11 a standard (selecting data structure is interpreted to be discriminating between a packet sent as a conventional 802.11 a

packet and a packet sent using an extended mode) (paragraph 0029, lines 14-19, claim 13, lines 1-8), the method comprising:

- receiving a signal from a wireless medium (figure 1), wherein the signal was transmitted from an extended mode transmitter as a packet wherein packet data is preceded by a packet preamble and wherein the packet preamble is generated from a cyclically shifted 802.11 a preamble (figure 5);
- demodulating (figure 1, 22) the signal to obtain a demodulated signal;
- decoding (figure 1, 24) from the demodulated signal, a packet data sequence including a cyclically shifted 802.11 a preamble when receiving packet data from an extended mode transmitter and a conventional 802.11 a preamble when receiving packet data from a conventional 802.11 a transmitter (figure 5, paragraph 0050, lines 14-23); and
- discriminating as to which type of packet was sent based on the received packet data sequence (selecting data structure is interpreted to be discriminating as to which type of packet was sent) (paragraph 0029, lines 14-19, claim 13, lines 1-8).

Regarding claim 14:

Stuber et al. further discloses, wherein the extended mode includes at least a MIMO extended mode wherein the packet preamble is generated from the cyclically shifted 802.1 la preamble (cyclic prefixes are interpreted to be cyclically shifted preamble) (figure 5, paragraph 0050, lines 14-23).

Regarding claim 15:

Stuber et al. further discloses, further comprising performing MIMO channel estimation using the .received preamble data (paragraph 0053, lines 1-5).

Regarding claim 16:

Stuber et al. further discloses, wherein the further comprising performing MIMO channel estimation using the received preamble data (paragraph 0053, lines 1-5).

Regarding claim 17:

Stuber et al. further discloses, wherein the signal transmitted from an extended mode transmitter (MIMO transmitter is interpreted to be an extended mode transmitter) (figure 1, 18, paragraph 0029, line 1-2) is such that legacy devices can decode a signal field of the preamble (figure 1, 24).

Regarding claim 18:

Stuber et al. further discloses, detecting that the signal transmitted used from an extended mode transmitter using a MIMO mode (MIMO transmitter is interpreted to be an extended mode transmitter) (figure 1, 18, paragraph 0029, line 1-2), the detecting using at least one out-of-band subcarrier (paragraph 0057, lines 4-7).

Regarding claim 19:

Stuber et al. further discloses, detecting that the signal transmitted used from an extended mode transmitter using a MIMO mode (MIMO transmitter is interpreted to be an extended mode transmitter) (figure 1, 18, paragraph 0029, line 1-2), the detecting including detecting a presence of cyclically shifted preamble components (cyclic prefixes are interpreted to be cyclically shifted preamble) (paragraph 0050, lines 1-14).

Regarding claim 20:

Stuber et al. further discloses, a method of transmitting a packet, using a MIMO transmitter having a plurality of antennas (figure 1, paragraph 0050, lines 1-4), over a wireless network wherein receivers operating as conventional 802.11a receivers might be present, the method comprising:

- obtaining data fields of a packet to be transmitted (figure 5);
- generating preamble fields of the packet to be transmitted, including an extended mode preamble distinguishable at a receiver from a conventional 802.11 a preamble (figure 5, paragraph 0050, lines 3-14), wherein a conventional 802.11 a receiver can decode one or more fields of the extended mode preamble (figure 1, 24); and
- transmitting the packet including the extended mode preamble (figure 5, paragraph 0050, lines 3-14).

Regarding claim 21:

Stuber et al. further discloses, wherein the fields of the extended mode preamble include a modified short training sequence (figure 5).

Regarding claim 22:

Stuber et al. further discloses, wherein the fields of the extended code preamble include a modified long training sequence (figure 5).

Regarding claim 23:

Stuber et al. further discloses, wherein the fields of the extended mode preamble include a modified signal field (time-space structure for preambles is interpreted to be the extended mode preamble) (figure 5, paragraph 0011, lines 1-4).

Regarding claim 28:

Stuber et al. further discloses a method of transmitting signals using a plurality of transmit channels, the method comprising:

- allocating the data to be transmitted among the plurality of transmit channels, wherein at least one of the plurality of transmit channels transports some data that is not transmitted over all of the other of the plurality of transmit channels (paragraph 0007, lines 1-8);
- transmitting a modified preamble from each of the plurality of transmit channels (figure 3), wherein the modified preamble is usable for performing channel estimation and at least a first part of the modified preamble for at least a first of the plurality of transmit channels is a cyclically shifted version of a second part of the modified preamble for at least a second of the plurality of transmit channels (paragraph 0053, lines 1-12).

Regarding claim 29:

Stuber et al. further discloses, wherein the first part and the second part comprise signal sequences with a low cross-correlation between long training symbols (figure 1, paragraph 0029, lines 14-19, claim 13, lines 1-8).

Regarding claim 30:

Stuber et al. further discloses, wherein the first part and the second part comprise signal sequences with a low cross-correlation between long training symbols (figure 1, paragraph 0029, lines 14-19, claim 13, lines 1-8).

Regarding claim 31:

Stuber et al. further discloses, further comprising MIMO synchronization (paragraph 0008, lines 1-3).

Regarding claim 32:

Stuber et al. further discloses, wherein the data to be transmitted is allocated to a plurality of subcarriers, the subcarriers of the plurality of subcarriers are allocated among transmit channels, and each transmit channel is associated with a distinct antenna (paragraph 0048, lines 1-4).

Regarding claim 33:

Stuber et al. further discloses, wherein the data to be transmitted is allocated to a plurality of subcarriers and some of the subcarriers of the plurality of subcarriers are inverted relative to other subcarriers of the plurality of subcarriers (paragraph 0048, lines 1-4).

Regarding claim 34:

Stuber et al. further discloses, wherein the data to be transmitted is allocated to a plurality of subcarriers including at least one out-of-band subcarrier (out of band signal is interpreted to be out-of-band subcarrier) (column 0057, lines 4-7).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 9 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stuber et al. (US Pub. Number 2003/0076777) in view of Moose et al. (US Pub. Number 2002/0065047).

Regarding claim 9:

Stuber et al. disclose all of the subject matter as described above except for specifically teaching the plurality of frequency channels are adjacent 20 MHz channels.

However, Moose et al., in the same field of endeavor, teaches the plurality of frequency channels are adjacent 20 MHz channels (paragraph 0007, lines 1-11).

One of ordinary skill in the art would have clearly recognized that IEEE 802.11a standardization committee selected coherent orthogonal frequency division multiplexing (OFDM) as the basis for a 5 GHz wireless local area network (WLAN) standard. This digital communication standard divides the 5150 MHz to 5350 MHz frequency band into eight 20-MHz communication channels. Each of these 20-MHz channels is composed of 52 narrow-band carriers. OFDM sends data in parallel across all of these carriers and aggregates the throughput. The standard supports data rates as high as 54 Mbps in 20 MHz channelization. To achieve the desired data rate, it would have been obvious to one ordinary skill in the art at the time the invention was made to use the IEEE 802.11a standard as taught by Moose et al. It is advantageous to use IEEE 802.11a standard, because it supports high data rate of up to 54 mbps and also we can achieve 20 MHz sampling rate.

Regarding claim 35:

Stuber et al. further disclose isolating each of a plurality of impulse responses, one per MIMO transmitter (figure 1, 18, paragraph 0043, lines 5-7)

Stuber et al. disclose all of the subject matter as described above except for specifically teaching receiving signals and sampling for a long training symbol; computing a 64-point FFT of the received long training symbol; multiplying each subcarrier is multiplied by known pilot values; computing an IFFT of the result of the multiplication, resulting in a 64-point impulse response estimate; and deriving channel estimates for all subcarriers from the isolated impulse responses by taking a 64-point FFT of each of the plurality of impulse responses, where the sample values are appended by zero values to get 64 input values as needed.

However, Moose et al., in the same field of endeavor, teaches:

- receiving signals and sampling for a long training symbol; computing a 64-point FFT of the received long training symbol (figure 1, paragraph 0024, lines 12-14);
- multiplying each subcarrier is multiplied by known pilot values (figure 6, 605);
- computing an IFFT of the result of the multiplication, resulting in a 64-point impulse response estimate (paragraph 0024, lines 1-4).
- isolating each of a plurality of impulse responses, one per MIMO transmitter; and
- deriving channel estimates for all subcarriers from the isolated impulse responses by taking a 64-point FFT of each of the plurality of impulse responses, where the sample values are appended by zero values to get 64 input values as needed.

One of ordinary skill in the art would have clearly recognized in order evaluate signals, the signal needs to be evaluated either in time domain or frequency domain.

To evaluate the signal in the desired domain a Fast Fourier Transform FFT or Inverse Fast Fourier Transform IFFT algorithm is used. To process 64 sample points at 20 MHz sampling rate and is called the OFDM FFT processing interval. Also the OFDM symbols can be generated by a length 64 inverse fast Fourier transform IFFT. To generate OFDM-MIMO symbol by a length of 64-point, it would have been obvious to one ordinary skill in the art at the time the invention was made to use the FFT and IFFT algorithm as taught by Moose et al. in synchronization and channel estimation system. Using FFT and IFFT are of great importance to a wide variety of applications such as digital signal processing.

8. Claims 24-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stuber et al. (US Pub. Number 2003/0076777) in view of Zhu et al. (US Pub. Number 2004/0005018).

Regarding claim 24:

Stuber et al. further discloses a method of communicating a packet (figure 1, paragraph 0050, lines 1-4), using a MIMO transmitter having a plurality of antennas, over a wireless medium to a MIMO receiver wherein receivers operating as conventional 802.11 a receivers might be listening to transmissions in the wireless medium, the method comprising:

- obtaining data fields of a packet to be transmitted (data symbol is interpreted to be data field) (figure 5, 55);

- generating preamble fields of the packet to be transmitted, including an extended mode preamble (figure 5, 54);
- transmitting the packet, including the extended mode preamble (figure 5, 54), as a signal into the wireless medium (wireless channel is interpreted to be wireless medium) (figure 1, 19);
- receiving a representation of the signal from a wireless medium (figure 1, 19, 10);
- at a receiver (figure 1, 10), demodulating (figure 1, 22) the signal to obtain a demodulated signal;
- at the receiver (figure 1, 10), decoding (figure 1, 24), from the demodulated signal, a packet data sequence including data representing at least a portion of a preamble (figure 1 & 5, paragraph 0050, lines 1-14);
- where the receiver is a MIMO receiver (figure 1, 10, paragraph 0029, lines 1-2), processing the packet data sequence according to an extended mode operation (space-time processor is interpreted to do the processing of data sequence according to an extended mode operation) (figure 2, 30).

Stuber et al. disclose all of the subject matter as described above except for specifically teaching where the receiver is a conventional 802.11a receiver, processing the packet data sequence to determine at least one valid conventional 802.11a preamble field and deferring further data reception related to that packet data sequence after determining, from the preamble, that the packet data sequence represents a packet not in conformance with a conventional 802.11a packet.

However, Zhu et al., in the same field of endeavor, teaches where the receiver is a conventional 802.11a receiver (paragraph 0053, lines 1-3), processing the packet data sequence to determine at least one valid conventional 802.11a (figure 1) preamble field and deferring further data reception related to that packet data sequence after determining, from the preamble, that the packet data sequence represents a packet not in conformance with a conventional 802.11a packet.

One of ordinary skill in the art would have clearly recognized that IEEE 802.11a standardization committee selected coherent orthogonal frequency division multiplexing (OFDM) as the basis for a 5 GHz wireless local area network (WLAN) standard. This digital communication standard divides the 5150 MHz to 5350 MHz frequency band into eight 20-MHz communication channels. Each of these 20-MHz channels is composed of 52 narrow-band carriers. OFDM sends data in parallel across all of these carriers and aggregates the throughput. The standard supports data rates as high as 54 Mbps in 20 MHz channelization. To achieve the desired data rate, it would have been obvious to one ordinary skill in the art at the time the invention was made to use the IEEE 802.11a standard as taught by Moose et al. It is advantageous to use IEEE 802.11a standard, because it supports high data rate of up to 54 mbps and also we can achieve 20 MHz sampling rate.

Regarding claim 25:

Stuber et al. further discloses, wherein the fields of the extended mode preamble include a modified short training sequence (figure 5).

Regarding claim 26:

Stuber et al. further discloses, wherein the fields of the extended mode preamble include a modified long training sequence (figure 5).

Regarding claim 27:

Stuber et al. further discloses, wherein the fields of the extended mode preamble include a modified signal field (data symbol is interpreted to be signal field) (figure 5, 55).

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ma et al. (US Pub. Number 2003/0072255) discloses system access and synchronization method for MIMO OFDM communication system and physical layer packet and preamble design, Kelton et al. (US Pub Number 2004/0203383) System for providing data to multiple devices and method thereof, and Murphy et al. (US Patent Number 7,203,245) Symbol boundary detector method and device for OFDM system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kabir A. Timory whose telephone number is (571) 270-1674. The examiner can normally be reached on Mon - Thu 6:30AM - 4:00PM & Fri 6:30AM - 3:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on (571) 272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kabir A. Timory
May 3, 2007

SHUWANG LIU
SUPERVISORY PATENT EXAMINER